

## Flame Resistant Foam

Below, a technician is installing—on the interior skin of a business jet—a new vibration damping product incorporating fire-resistant, lightweight polyimide foam. Introduced last year under the trade name SOLDAMP™, the material has gained rapid acceptance among operators of business jets because of its superior damping characteristics, lighter weight, and fire barrier properties. The airplane shown is the French-designed Dassault/Breguet Falcon Jet, outfitted in the United



States by the Little Rock Division of Falcon Jet Corporation, Little Rock, Arkansas.

The photos illustrate the Falcon Jet installation sequence. Below, a company employee is cutting sheets of the material into various shapes and sizes to fit between structural parts of the airplane. For easy installation, SOLDAMP has an adhesive backing, exposed by peeling off the outer skin (right). The far right photo shows a completed area of the Falcon Jet interior.

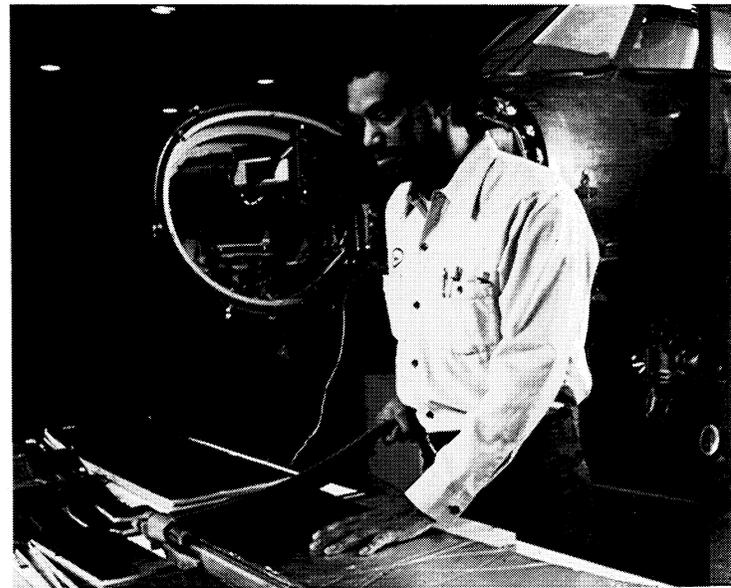
Some business aircraft—notably those outfitted by Georgetown Aircraft Services, Georgetown, Delaware—are now available with a complete thermal/acoustical blanket incorporating both SOLDAMP and a thicker layer of the same polyimide foam. This treatment provides superior acoustical results, lighter weight, and fire-resistant encapsulation for the passengers and crew.

SOLDAMP is a member of the family of polyimide foam materials known as Solimide®, and manufactured by Imi-Tech Corporation, Elk Grove Village, Illinois. Solimide was originally developed by Solar Turbines International, San Diego, California, a division of International Harvester Company, under contracts with Johnson Space Center in a program aimed at minimizing fire hazard in the Space Shuttle and other flight vehicles. The assets and business of International Harvester's Solimide operations were subsequently acquired by Imi-Tech, which has expanded production and developed a number of new products based on the original technology. The technology is covered by several patents, some of them owned by Imi-Tech and others waived by NASA for Imi-Tech use.

Solimide is a lightweight fire-resistant material produced under a manufacturing process that allows it to be uniformly foamed. It can be produced in a variety of densities and structural configurations, and it remains resilient under exposure to temperatures ranging from minus 300 to plus 500 degrees Fahrenheit. It is resistant to open flame and generates virtually no smoke or toxic byproducts.

™ SOLDAMP is a trademark of Imi-Tech Corporation.

® Solimide is a registered trademark of Imi-Tech Corporation.





In addition to their use in aircraft for vibration damping, insulation and noise reduction, materials of the Solimide family have applicability to aircraft interior panels and potentially for seat cushions after further development, because they resist ignition better than any materials in use; Imi-Tech is developing a special, more durable formulation for the latter application. Solimide is used aboard the Space Shuttle for packaging and insulation of equipment.

Another application in air transportation is in refrigeration equipment produced by Acurex Aerotherm, a division of Acurex Corporation, Anaheim, California. Acurex Aerotherm supplies about 40 percent of the refrigeration equipment used in galleys of the free world's commercial airliners. The company uses a form of the material, known as Solimide TA-30, as a thermal barrier in the walls of the air chilling system, located separately from the airliner's galley, and in the refrigeration units in the galley (right). The material allows Aerotherm to meet and surpass the strict flame resistance, smoke and toxicity specifications demanded by commercial airframe manufacturers. Other aerospace applications include thermal/acoustical blankets on helicopters, cryogenic insulation of rocket fuel tanks and cabin insulation of several other executive jets.

In non-aerospace applications, Imi-Tech offers a broad family of Solimide-based products for marine use. The U.S. Navy is using Solimide for cushioning of critical parts aboard ship, and approval has been received for several other Solimide-based insulating products on Navy ships. In addition, Imi-Tech has a new acoustical blanket under test for use in submarines and is conducting research and development for use of the material as submarine hull insulation. Solimide is also used in industrial applications, as thermal insulation for sensitive electronic equipment (see page 00) and as acoustical insulation in manufacturing environments where extreme conditions and a risk of fire or explosion exist. As a material for thermal and acoustical insulation, vibration damping, paneling and—in the longer term—seat cushions, it is applicable not only to aircraft and ships but to such surface transportation systems as rapid transit cars, trains, buses, and automobiles.

